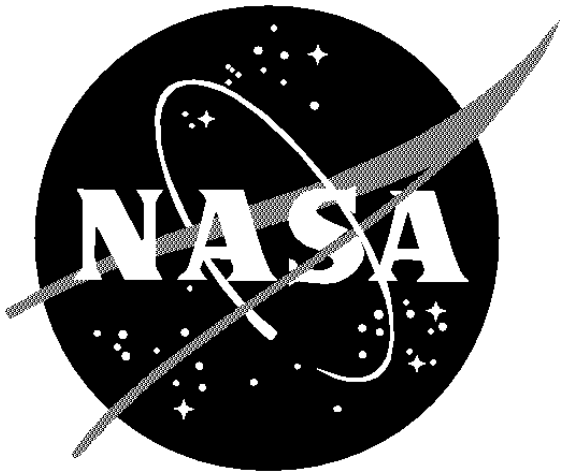

National Aeronautics and
Space Administration

June 29, 1999

NRA-99-OES-02

RESEARCH ANNOUNCEMENT

**OPPORTUNITIES TO PARTICIPATE IN
THE EARTH SCIENCE ENTERPRISE (ESE) EDUCATION PROGRAM**

Proposals Due August 30, 1999

OMB Approval No. 2700-0087

OPPORTUNITIES TO PARTICIPATE IN THE EARTH SCIENCE ENTERPRISE (ESE) EDUCATION PROGRAM

NASA Research Announcement
Soliciting Proposals
for
Period Ending
August 30, 1999

NRA-99-OES-02
Issued June 29, 1999

Office of Earth Science
National Aeronautics and Space Administration
Washington, DC 20546

OPPORTUNITIES TO PARTICIPATE IN
THE EARTH SCIENCE ENTERPRISE (ESE) EDUCATION PROGRAM

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OPPORTUNITIES TO PARTICIPATE IN
THE EARTH SCIENCE ENTERPRISE (ESE) EDUCATION PROGRAM

I. Purpose of this announcement

The Earth Science Enterprise (ESE) is NASA's contribution to developing a vastly improved understanding of the Earth by capitalizing on the unique vantage point of space to provide information about the Earth's air, land, water and life - and the interactions among them. This approach to studying the Earth as an integrated system is referred to as Earth system science. The purpose of this announcement is to solicit unique and innovative proposals from a broad range of education and research professionals to develop and implement Earth system science education programs targeted for kindergarten through post doctoral levels. This is the first education solicitation that will be issued on a regular basis in the future from NASA's Earth Science Enterprise.

II. Background

Over the past 18 years, scientists have begun to see the Earth as an intricately coupled system where the interactions of land, oceans, atmosphere, ice and biota are critical to understanding climate change on a regional-to-global scale. Thus a new, interdisciplinary field of Earth system science has been created. The ultimate challenge of Earth system science is to develop the capability to predict those changes that will occur in the next decade to century, both naturally and in response to human activity.

This new field is maturing rapidly, driven by the basic nature of the questions and the importance of their implications for economic growth and the environment.

The pursuit of Earth system science would be impractical without the continuous global coverage provided by satellite-borne instruments. NASA's unique ability to develop advanced, space-based research platforms, converging with the national interest in the basic sciences and their practical benefits, has led to the establishment of one of NASA's five strategic enterprises: the Earth Science Enterprise (ESE). Numerous users in academia, industry, and Federal, State, and Local government tap the data sets generated by ESE to produce products and services essential to achieving sustainable development.

The formal education community is a primary customer for ESE's generated knowledge. While the ostensible goal of ESE is scientific understanding, the ultimate product of the program is education in its broadest form. Objective 2.2 of the ESE program, as cited in the ESE Strategic Enterprise Plan, is to "foster the development of an informed and environmentally aware public." Within this context, contributions by ESE to the advancement of formal education are a major aspect of how the success of the program will be measured. Formal education and professional development provide a structured opportunity to communicate the content of ESE to a large community.

NASA's ESE has worked with NASA's Education Division to develop a strategically sound formal education program with national impact, relevant science content, attention to equity and diversity and collaboration with external partners as basic principles.

The current ESE Education Program seeks to strengthen and expand the program's impact on a national basis, particularly for the minority, underrepresented and disadvantaged populations. (For more information on ESE and the ESE Education Program and Strategy, please refer to the following Internet address*: http://www.earth.nasa.gov/education/* to access the ESE home page.)

II. Guidance for Proposers

In an effort to maintain balance in program implementation approaches and reflect changes in priorities, all program activities are analyzed at a summary level. This review provides feedback to program management and forms the basis for the focus of a regular education announcement. Year-to-year, the focus of the announcement will vary, depending on program needs and available resources.

This first annual education announcement solicits several, different types of proposals. NASA will issue grants to all awardees. The total funds available for this solicitation will be about $2.0 million per year for three years.

1. **In-Service Teacher Enhancement** proposals will provide opportunities for educators across the U.S. to participate in a tested and validated on-line Earth system science course.

2. **Pre-Service Teacher Enhancement** proposals will provide an opportunity for schools of education to partner with schools of science, math and technology to develop institutionally supported courses that introduce student educators of all disciples and grade levels to Earth system science related concepts.

3. **Student Enrichment** proposals will provide hands-on research opportunities to secondary and higher education students, primarily in the minority or disadvantaged sectors. The content of the Student Enrichment proposals includes Earth system science, data assessment, climate prediction and career awareness.

4. **Curriculum Support/Resources** proposals will provide development and testing of a set of stand-alone classroom activities, designed for the K-4 education community.

5. **Digital Earth Education Scenarios** proposals will provide for development and testing of user scenarios for the Digital Earth project.

6. **Unique and Innovative Education and Outreach Projects** proposals will provide opportunities for unique and innovative programs products and resources related to the various elements of the ESE Education program.

III.a In-Service Teacher Enhancement

NASA intends to award three-year grants to entities with unique and innovative proposals to facilitate and offer the Earth System Science On-Line Course (developed and tested by NASA's Classroom of the Future in Wheeling, West Virginia.) Proposals should describe experience in operating a host site and schedule a minimum of one course per semester or quarter through project duration. Proposals should include plans for promoting the courses in the institution's service area, recruiting educators to take the courses, participating in the facilitator training program, facilitating the courses, evaluating the courses and obtaining appropriate technical capability required for course delivery. No funds will be included in the grants for training of the facilitators. This cost will be covered separately by NASA.

Below are the technical requirements for offering the Earth System Science On-Line Course:

Technical Requirements

1. A Secure Web Server (JavaScript enabled) using one of these operating systems:
   - Windows NT
   - Solaris

- Linux

2. A dedicated Internet connection.

3. Compatible chat software (ex. HyperNews (Unix) HyperMail (Unix) WebBoard)

4. Space requirements:
   - ESSC (3MB) Grades 5-8, Middle School
   - ESSC2 (3MB) Grades K-4, Elementary School
   - ESSC3 (3MB) Grades 9-12, High School
   - Chat software, allow for 20MB once installed to store messages

5. A Word processing package.

Proposing institutions are encouraged to include educators from institutions that serve minority, underrepresented and/or disadvantaged populations. All participants should be required to apply through a formal process and obtain timely feedback from the course facilitator. The grantee should partner with Wheeling Jesuit College or other institutions of higher education to provide one graduate credit for pre-service participants. One continuing education credit (or CEU), approved by the institution's applicable state department of education or K-12 education regulatory body, should be offered to in-service participants.

III.a.1 Proposal Preparation

In-Service Teacher Enhancement proposals should be prepared in accordance with the instructions in Appendix A of this announcement with the following exceptions. The completed proposal should not exceed 12 single-spaced pages, (including abstract, project description, figures, tables, references, management approach, personnel, facilities and equipment and proposed costs), and follow the standard NASA format.

The proposal must also include background information of the PI and a detailed job description for the facilitator (if different from the PI.) NASA strongly encourages organizations to contribute resources or in-kind contributions to the project.

The proposal must also include assurance that pre-service participants will receive 1 university credit for completion of the course(s). Likewise, the proposal must include assurance that the applicable state department of education or other K-12 education regulatory body will approve 1 CEU (or continuing education credit) for in-service participants.

III.b Pre-Service Teacher Enhancement

NASA intends to award grants to support university faculty teams (1 member from school of education and 1 member from science or technical school at same institution.) The teams will participate in NASA's Project ALERT (Augmented Learning Environment and Renewable Teaching) and NOVA (NASA Opportunities for Visionary Academics) programs with an intent to augment existing curriculum or develop new courses for students of education at their home institution, incorporating Earth system science-related concepts. The award is meant to specifically offer the equivalent of 3 hour course release time plus travel compensation for up to 20 professors (or 10 teams) per year. This assumes that each home institution will match NASA's contribution to cover release time for each participant.

The purpose of these awards is to stimulate the relationships between the schools of education and schools of math, science and technology to specifically address the needs of pre-service education students. Earth systems science, remote sensing technology, data assessment and applications are all

integral parts of observing our planet from space. Infusing this wholistic approach to studying the planet into the required courses for teacher certification will develop a national cadre of K-12 educators that may pass on this cutting edge approach to their elementary and secondary students.

The targeted population for the augmented or newly developed courses is pre-service educators. However, they are not limited to future educators of science, math and technology. Earth system science concepts can be part of these disciplines as well as English, geography, social studies, history, etc. Therefore, any attempts to influence the curriculum of students of education in various disciplines and various grade levels is highly encouraged.

Each professor team will participate simultaneously in both Project ALERT (ongoing participation for three years) and in one workshop session of Project NOVA. Project ALERT is managed by a PI from California State University in Long Beach, California. This predominantly California-focussed pre-service education program is being expanded with this announcement. The program enables participants to assess current Earth science instructional courses; identify areas for new or expanded coursework; and allows them to use, assess, and create web-based and/or multimedia educational products with the assistance of NASA technologists. Summer workshops provide exchange of scientific and technical information, discussion of course structure, and creation of curriculum enhancements. Project NOVA offers regularly scheduled workshops for science and educator teams to expose them to NASA science and technologies and subsequently offer the opportunity for interested teams to apply for follow-on grants to develop new courses that infuse what the teams have learned into pre-service education curriculum.

III.b.1 Proposal Preparation

Pre-Service Teacher Enhancement proposals should be prepared in accordance with the instructions in Appendix A of this announcement with the following exceptions. The completed proposal should not exceed 12 single-spaced pages, (including abstract, project description, figures, tables, references, management approach, personnel, facilities and equipment and proposed costs), and follow the standard NASA format.

The proposal must also include the identity and background of each professor team member and letters of support for this project from their respective deans. The letter of support should contain an intent to assess any resulting curriculum developed and incorporate it into the appropriate courses. Courses must meet their respective state's teacher certification standards. NASA strongly encourages organizations to contribute resources or in-kind contributions to the project. A matching of institutional funds to support release time and travel is assumed.

III.c Student Enrichment

NASA intends to award three-year grants to institutions that serve pre-college and undergraduate minority/underrepresented or disadvantaged populations for providing hands-on research opportunities in Earth system science, remote sensing data assessment and/or climate prediction. The number of participants per institution will be no less than 12 students per year. A further assumption is that no funding is assumed for participant transportation or lodging (they should be in close proximity to the home institution.)

In addition to receiving hands-on training, the participants should be exposed to a variety of careers available in research, data analysis, applications, etc. Each participant should prepare a written report on his/her experience and the careers that the experience may lead to, supported by a plan for reaching the career goal(s).

III.c.1 Proposal Preparation

Student Enrichment proposals should be prepared in accordance with the instructions in Appendix A of this announcement with the following exceptions. The completed proposal should not exceed 12 single-spaced pages, (including abstract, project description, figures, tables, references, management approach, personnel, facilities and equipment and proposed costs), and follow the standard NASA format. NASA strongly encourages organizations to contribute resources or in-kind contributions to the project.

III.d Curriculum Support/Resources

NASA's ESE maintains an evaluated inventory of various curriculum support products. On a request basis, educators and interested public are provided with in-stock, printed materials, free-of-charge (based on availability.) Multi-media products may be purchased at cost through NASA CORE (Central Operation of Resources for Educators). For more information on existing NASA/ESE curriculum support materials and the dissemination strategy, please refer to the ESE Education Strategy and the ESE Education Catalog available on the ESE Home Page *http://www.earth.nasa.gov/education/*.

There are numerous products available for grades 5-12 and students of higher education. However, it has been a challenge to develop unique and innovative products for the K-4 education community in the area of Earth system science. Educators of elementary age children are the largest group of clients that request printed materials from NASA's Educator Resource Center Network. Therefore, it is crucial to meet the demand with useful, easy to use and understand materials to support existing curriculum.

In light of this need, NASA intends to award grant(s) to organization(s) that propose a unique and innovative plan to develop and field test (on a national scale) a set of age-appropriate activities related to fields of Earth system science research, and/or data assessment for the K-4 education community. The size of the grant(s) assume that the proposing organization will develop and complete testing of at least twenty separate, stand-alone activities and/or projects that may be distributed individually or as a package. The scope of this grant is only through product development, evaluation and assessment. The use of existing materials (inside or outside of NASA) especially Earth remote sensing data is strongly encouraged. Each activity should be created with black and white, 8 1/2 x 11" standard size duplication in mind

III.d.1 Proposal Preparation

Curriculum Support/Resources proposals should be prepared in accordance with the instructions in Appendix A of this announcement with the following exceptions. The completed proposal should not exceed 12 single-spaced pages, (including abstract, project description, figures, tables, references, management approach, personnel, facilities and equipment and proposed costs), and follow the standard NASA format. NASA strongly encourages organizations to contribute resources or in-kind contributions to the project.

III.e Digital Earth Education Scenarios

Faculty, teachers, software developers, publishers, and a host of others across the United States and around the world are contributing to the development of rich and engaging new environments for active, inquiry-driven learning in science, mathematics, engineering, and technology (SMET). This revolution draws much of its vigor from the contemporaneous technological revolution that has put enormous computational power on desktops and in backpacks; that has created networks that bridge distance, discipline, institution, and even culture; and that has created a new generation of powerful, flexible, and inexpensive experimental equipment.

Many individual projects are already exploiting the World Wide Web as a platform for rich, multidisciplinary, interactive SMET learning and as a vehicle for dissemination. The World Wide Web is a medium made for this message. Its richly linked hypertext architecture matches the richly linked architecture of human knowledge, and its extraordinary variety of resources encourages and supports inquiry-driven, collaborative learning.

The National Science Foundation (NSF) is supporting the development of a national digital library for science, mathematics, engineering, and Technology education. This is a natural next step based on the Web and building on foundational work in computer science, networks, and digital libraries to leverage and disseminate advances in the content and practice of SMET education.

NASA is working with partners to develop a Digital Earth (http://digitalearth.gsfc.nasa.gov), which could provide a mechanism for users to navigate and search for geospatial information - and for producers to publish it. The Digital Earth will be composed of both the "user interface" - a browsable, 3D version of the planet available at various levels of resolution, a rapidly growing universe of networked geospatial information, and the mechanisms for integrating and displaying information from multiple sources.

Like the Web, the Digital Earth will organically evolve over time, as technology improves and the information available expands. Rather than being maintained by a single organization, it will be composed of both publicly available information and commercial products and services from thousands of different organizations.

Digital Earth could contribute one or more "collections" to the NSF digital library, covering image and remote sensing data handling and analysis, user-group-specific instructional materials, and geo-referenced and other data.

NASA plans to award no more than 25% of the total available for this announcement to develop and test a user scenario for Digital Earth, unless additional resources become available. Participation from government, industry, and academia is encouraged. This testbed would focus on a few applications for users groups such as:

1. Middle School social studies class studying...
2. High School Earth science class studying...
3. City Council land use decision...
4. Family planning a vacation to...
5. State Disaster Team responding to...
6. Public Auditorium presentation on...
7. Public Interactive Geography Game
8. Museum display of...
9. Farmer planning...
10. Kiosk in a Mall showing...
11. Research Scientist studying...
12. Newspaper Reporter investigating...
13. Commercial Enterprise exploring...
14. International Lawyer researching...
15. A Non-Governmental Organization (NGO) planning humanitarian...

The grantee will be required to identify three to five user scenarios in their proposal. The purpose is to present Digital Earth in a way compelling to the intended audience and describe the uses they would find for Digital Earth data. From this information, the grantee will present the kinds of instructional material the intended audience would be able to follow and implement, given the kinds of equipment, time, and background they are most likely to have.

To work out a scenario, the grantee will:

1. Assemble one or more teams composed of users, remote sensing scientists, and tech support.

2. Develop ideas about what the user group would actually do with the data -- what they could learn that would really be of interest to them. Build on existing material where possible.

3. Try things out with real data and real tools; learn, iterate, and document along the way.

4. Refine the documentation into materials that would illustrate and explain the goals, attitudes, activities, & tools to the intended audience. Coordinate with related groups if available.

5. Test and further refine the material by distributing it to uninitiated users and studying their processes.

III.e.1 Proposal Preparation

Digital Earth Education Scenario proposals should be prepared in accordance with the instructions in Appendix A of this announcement with the following exceptions. The completed proposal should not exceed 12 single-spaced pages, (including abstract, project description, figures, tables, references, management approach, personnel, facilities and equipment and proposed costs), and follow the standard NASA format.

The proposal must include the make-up of the proposed team, including proof of commitment and bios from each individual. The proposed user groups should be defined. NASA strongly encourages organizations to contribute resources or in-kind contributions to the project.

III.f Unique and Innovative Education and Outreach Projects

In an effort to remain on the cutting edge of science education, NASA's ESE will consider making awards for proposals that describe unique and innovative ideas for making Earth system science content useful to the formal and informal education community (based on funds available and the recommendation of the external and internal review teams of the submitted proposals.)

Proposals will be considered on their technical merit, needs of educators, and their applicability to the ESE Education Strategy goals and needs. Please refer to the ESE Education Strategy *http://www.earth.nasa.gov/education/* for a complete list of current program priorities and the ESE Education Catalog for a list of current programs, products and resources.

III.f.1 Proposal Preparation

Proposals in the Other category should be prepared in accordance with the instructions in Appendix A of this announcement with the following exceptions. The completed proposal should not exceed 12 single-spaced pages, (including abstract, project description, figures, tables, references, management approach, personnel, facilities and equipment and proposed costs), and follow the standard NASA format.

NASA strongly encourages organizations to contribute resources or in-kind contributions to the project.

IV. Eligibility

In support of **NASA Education Excellence: We involve the educational community in our endeavors to inspire America's students, create learning opportunities, and enlighten**

inquisitive *minds* (http://education.nasa.gov/implan/exec.html). All awardees must be US institutions, which include academic institutions, museums, science centers, hospitals, other non-profit organizations, and state and local governments. Collaborations with partners from institutions other the submitting institution are encouraged. This includes international collaborations. Access to unique equipment, facilities, and/or geographical locations, and the opportunity to collaborate with outstanding foreign researchers and educators may provide substantial benefits to the proposed activity: note that U.S. funds cannot be used to support participation of foreign partners.

V. Evaluation Process

Teacher Enhancement awards will be made to a set of organizations that as a whole present the best opportunity to maximize nationwide opportunities for participants, while maintaining an emphasis on institutions that serve minority, disadvantaged and underrepresented populations. The Student Support awards will be made to a set of organizations that maximizes the potential national impact on the secondary and higher education community while maintaining an emphasis on institutions that serve minority, disadvantaged and underrepresented populations. The Curriculum Support/Resources awards will be made to organization(s) that proposes a set of activities that are nationally relevant, explain in some way Earth system science and/or data applications, and incorporate the National Science Standards. The Other awards will be made based on the availability of funds and the needs of the strategic program, as a whole.

NASA reserves the right to make judgements during final project selection based on programmatic factors, including the overall balance of viable proposals across Earth system science education program.

VI. Evaluation Criteria

The general criteria for proposal selection (see Appendix A) apply to this announcement. Contribution of resources and in-kind contributions as well as leveraging existing programs, products and resources is encouraged. Please note that these two categories will not be evaluated.

Teacher Enhancement awards will be made to a set of organizations that as a whole present the best opportunity to maximize nationwide opportunities for participants, while maintaining an emphasis on institutions that serve minority, disadvantaged and underrepresented populations. The Student Support awards will be made to a set of organizations that maximizes the potential national impact on the secondary and higher education community while maintaining an emphasis on institutions that serve minority, disadvantaged and underrepresented populations. The Curriculum Support/Resources awards will be made to organization(s) that proposes a set of activities that are nationally relevant, explain in some way Earth system science and/or data applications, and incorporate the National Science Standards. The Other awards will be made based on the availability of funds and the needs of the strategic program, as a whole. NASA reserves the right to make judgements during final project selection based on programmatic factors, including the overall balance of viable proposals across Earth system science education program.

VI. Proposal Submission and Selection Schedule

Letter of Intent due to NASA 4:30 p.m. e.d.t., on July 30, 1999. A letter of intent is recommended but not mandatory for this announcement.

Proposals due to NASA 4:30 p.m. e.d.t., on August 30, 1999.

Announcement of final selections October 30, 1999.

Additional information is provided in Appendices A-D of this Announcement.

Submit Letters of Intent and Proposals to:	NRA-99-OES-02 400 Virginia Avenue, SW, Suite 700 Washington, DC 20024 (202) 554-2775
Copies required:	12
Selecting Official:	Director, Applications and Outreach Division Office of Earth Science Director, Education Division Office of Human Resources & Education Division Director, Minority Univ. Research & Education Division Office of Equal Opportunity
Obtain Additional General Information:	Nahid Khazenie NASA Headquarters Code YO Washington, DC 20546 (202) 358-4708 E-mail: nkhazeni@hq.nasa.gov

Your interest and cooperation in participating in this opportunity are appreciated.

Ghassem R. Asrar
Associate Administrator for Earth Science

Enclosures:

Appendix A, “Instructions for Responding to NASA Research Announcements”
Appendix B, “Required Declarations and proposal Cover Sheet”
Appendix C, “Letter of Intent”
Appendix D, “Budget Summary”

APPENDIX A

INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS

Part 1852.235-72
NASA Federal Acquisition Regulations (FAR) Supplement (NFS)
Version 89.90, Effective March 11, 1997.

Accessible at URL
http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm, open
Part 1852.228 to 1852.241 from menu.

(JANUARY 1997)

(a) General.

(1) Proposals received in response to a NASA Research Announcement (NRA) will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a pre-award synopsis published for individual proposals.

(2) A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

(3) NRAs contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRAs.

(4) A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to an NRA. NASA will determine the appropriate instrument. Contracts resulting from NRAs are subject to the Federal Acquisition Regulation and the NASA FAR Supplement. Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NPG 5800.1).

(5) NASA does not have mandatory forms or formats for responses to NRAs; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

(6) To be considered for award, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.

(b) NRA-Specific Items. Several proposal submission items appear in the NRA itself: the unique NRA identifier; when to submit proposals; where to send proposals; number of copies required; and sources for more information. Items included in these instructions may be supplemented by the NRA.

(c) The following information is needed to permit consideration in an objective manner. NRAs will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

(1) Transmittal Letter or Prefatory Material.

(i) The legal name and address of the organization and specific division or campus identification if part of a larger organization;

(ii) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;

(iii) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;

(iv) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;

(v) Identification of other organizations that are currently evaluating a proposal for the same efforts;

(vi) Identification of the NRA, by number and title, to which the proposal is responding;

(vii) Dollar amount requested, desired starting date, and duration of project;

(viii) Date of submission; and

(ix) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

(2) **Restriction on Use and Disclosure of Proposal Information**. Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the notice. In any event, information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

Notice

Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

(3) **Abstract.** Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

(4) **Project Description**.

(i) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance; relation to the present state of knowledge; and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(ii) When it is expected that the effort will require more than one year, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

(5) **Management Approach**. For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described.

(6) **Personnel**. The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

(7) **Facilities and Equipment.**

(i) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use. Include evidence of its availability and the cognizant Government points of contact.

(ii) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non-research purposes should be explained.

(8) **Proposed Costs.**

(i) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages; fringe benefits; equipment; expendable materials and supplies; services; domestic and foreign travel; ADP expenses; publication or page charges; consultants; subcontracts; other miscellaneous identifiable direct costs; and indirect costs. List salaries and wages in appropriate organizational

categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all staffing data in terms of staff-months or fractions of full-time.

(ii) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired; purpose and estimated number and lengths of trips planned; basis for indirect cost computation (including date of most recent negotiation and cognizant agency); and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases.

(iii) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

(9) **Security**. Proposals should not contain security-classified material. If the research requires access to or may generate security-classified information, the submitter will be required to comply with Government security regulations.

(10) **Current Support**. For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

(11) **Special Matters.**

(i) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(ii) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

(d) **Renewal Proposals**

(1) Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

(2) NASA may renew an effort either through amendment of an existing contract or by a new award.

(e) **Length.** Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments.

(f) **Joint Proposals**.

(1) Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the

legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

(2) Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

(g) **Late Proposals**. A proposal or modification received after the date or dates specified in an NRA may be considered if doing so is in the best interests of the Government.

(h) **Withdrawal.** Proposals may be withdrawn by the proposer at any time before award. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

(i) **Evaluation Factors**

(1) Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

(2) Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's Earth Science Enterprise Education Program.

(3) Evaluation of its intrinsic merit includes the consideration of the following factors of equal importance:

(i) Use of unique and innovative methods, approaches, or technologies demonstrated in the proposal to achieve objectives of the ESE Education Program.

(ii) Offeror's capabilities, related experience, technical soundness of approach and adequacy of institutional resources available for achieving the proposal objectives.

(iii) Potential of the proposal to address the needs of the formal education community and contribute to a better understanding of Earth system science.

(iv) Overall standing among similar proposals and/or evaluation against existing Earth Science Enterprise Education Program activities.

(4) Evaluation of the cost of a proposed effort may include the realism and reasonableness of the proposed cost as well as the extent to which existing programs, products and resources are leveraged.

(j) **Evaluation Techniques**. Selection decisions will be made following peer review of the proposals. Several evaluation techniques are regularly used within NASA. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.

(k) **Selection for Award**.

(1) When a proposal is not selected for award, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

(2) When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation. The contracting officer may request certain business data and may forward a model award instrument and other information pertinent to negotiation.

(l) **Cancellation of NRA**. NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation.

Appendix B

ESE Education Proposal Cover Sheet

NASA Research Announcement 99-OES-02
Proposal No. _____ (Leave Blank for NASA Use)
Title: _____
Proposal Category (check one): ___In-Service Teacher Enhancement ___Student Enrich
___Pre-Service Teacher Enhancement ___Curriculum Support/Resources ___Other

Principal Investigator::_____

Department:_____

Institution: _____

Street/PO Box: _____

City: _____ State: _____ Zip: _____

Country: _____ E-mail: _____

Telephone: _____ Fax: _____

Co-Investigators:

Name	Institution & Email Address	Address & Telephone
_____	_____	_____
_____	_____	_____

Budget:
1st Year: _____ 2nd Year: _____ 3rd Year: _____ Total: _____

Certification of Compliance with Applicable Executive Orders and U.S. Code

By submitting the proposal identified in this *Cover Sheet/Proposal Summary* in response to this Research Announcement, the Authorizing Official of the proposing institution (or the individual proposer if there is no proposing institution) as identified below:

- certifies that the statements made in this proposal are true and complete to the best of his/her knowledge;
- agrees to accept the obligations to comply with NASA award terms and conditions if an award is made as a result of this proposal; and
- confirms compliance with all provisions, rules, and stipulations set forth in the two Certifications contained in this NRA [namely, (i*) Certification of Compliance with the NASA Regulations Pursuant to Nondiscrimination in Federally Assisted Programs*, *and (ii) Certifications, Disclosures, And Assurances Regarding Lobbying and Debarment & Suspension*].

Willful provision of false information in this proposal and/or its supporting documents, or in reports required under an ensuing award, is a criminal offense (U.S. Code, Title 18, Section 1001).

Title of Authorizing Institutional Official: _____

Signature: _____ Date: _____

Name of Proposing Institution: _____

Telephone: _____ E-mail:_____ Facsimile: _____

Certification of Compliance with the NASA Regulations Pursuant to Nondiscrimination in Federally Assisted Programs

The *(Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant ")* hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1962 (20 U.S.C. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and the Age Discrimination Act of 1975 (42 U.S.C. 16101 et seq.), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and hereby give assurance that it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

this assurance is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognized and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.

NASA FORM 1206

CERTIFICATIONS, DISCLOSURES, AND ASSURANCES REGARDING LOBBYING AND DEBARMENT & SUSPENSION

1. LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 14 CFR Part 1271, as defined at 14 CFR Subparts 1271.110 and 1260.117, with each submission that initiates agency consideration of such applicant for award of a Federal contract, grant, or cooperative agreement exceeding $ 100,000, the applicant must **certify** that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit a Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

2. GOVERNMENTWIDE DEBARMENT AND SUSPENSION

As required by Executive Order 12549, and implemented at 14 CFR 1260.510, for prospective participants in primary covered transactions, as defined at 14 CFR Subparts 1265.510 and 1260.117—

(1) The prospective primary participant **certifies** to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency.

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (l)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Appendix C

Letter of Intent

All prospective proposers are strongly encouraged to submit a letter of intent in response to this announcement. This will allow us to alert a peer review staff to adequately cover the proposal review process. This letter of intent is available electronically via the Internet at URL: *http://www.earth.nasa.gov/LOI***.** We urge you to use these electronic letter of intent forms unless

you do not have access to the Internet. In that case, we will accept a FAX copy sent to 202-554-3024 with the following information:

- PI and CoI names and addresses, (including Zip + 4);
- Title of proposal;
- Telephone number;
- Fax number;
- Email address; and
- A brief summary of what you plan to propose (Please limit this to no more than 3000 characters).

APPENDIX D

BUDGET SUMMARY

For period from _____ to _____

- Provide a complete Budget Summary for year one and separate estimated for each subsequent year.
- Enter the proposed estimated costs in Column A (Columns B & C for NASA use only).
- Provide as attachments detailed computations of all estimates in each cost category with narratives as required to fully explain each proposed cost. See *Instructions For Budget Summary* on following page for details.

		NASA USE ONLY	
	A	**B**	**C**
1. Direct Labor (salaries, wages, and fringe benefits)	_____	_____	_____
2. Other Direct Costs:			
a. Subcontracts	_____	_____	_____
b. Consultants	_____	_____	_____
c. Equipment	_____	_____	_____
d. Supplies	_____	_____	_____
e. Travel	_____	_____	_____
f. Other	_____	_____	_____
3. Facilities and Administrative Costs	_____	_____	_____
4. Other Applicable Costs:	_____	_____	_____
5. SUBTOTAL--Estimated Costs	_____	_____	_____
6. Less Proposed Cost Sharing (if any)	_____	_____	_____
7. Carryover Funds (if any)			
a. Anticipated amount : _____			
b. Amount used to reduce budget	_____	_____	_____
8. Total Estimated Costs	_____	_____	XXXXXXX
9. APPROVED BUDGET	XXXXXX	XXXXXXX	_____

INSTRUCTIONS FOR BUDGET SUMMARY

1. Direct Labor (salaries, wages, and fringe benefits): Attachments should list the number and titles of personnel, amounts of time to be devoted to the grant, and rates of pay.

2. Other Direct Costs:
    a. Subcontracts: Attachments should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting.
    b. Consultants: Identify consultants to be used, why they are necessary, the time they will spend on the project, and rates of pay (not to exceed the equivalent of the daily rate for Level IV of the Executive Schedule, exclusive of expenses and indirect costs).
    c. Equipment: List separately. Explain the need for items costing more than $5,000. Describe basis for estimated cost. General purpose equipment is not allowable as a direct cost unless specifically approved by the NASA Grant Officer. Any equipment purchase requested to be made as a direct charge under this award must include the equipment description, how it will be used in the conduct of the basic research proposed and why it cannot be purchased with indirect funds.
    d. Supplies: Provide general categories of needed supplies, the method of acquisition, and the estimated cost.
    e. Travel: Describe the purpose of the proposed travel in relation to the grant and provide the basis of estimate, including information on destination and number of travelers where known.
    f. Other: Enter the total of direct costs not covered by 2a through 2e. Attach an itemized list explaining the need for each item and the basis for the estimate.

3. Facilities and Administrative (F&A) Costs: Identify F&A cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency official having cognizance. If unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.

4. Other Applicable Costs: Enter total explaining the need for each item.

5. Subtotal-Estimated Costs: Enter the sum of items 1 through 4.

6. Less Proposed Cost Sharing (if any): Enter any amount proposed. If cost sharing is based on specific cost items, identify each item and amount in an attachment.

7. Carryover Funds (if any): Enter the dollar amount of any funds expected to be available for carryover from the prior budget period Identify how the funds will be used if they are not used to reduce the budget. NASA officials will decide whether to use all or part of the anticipated carryover to reduce the budget (not applicable to 2nd-year and subsequent-year budgets submitted for award of a multiple year award).

8. Total Estimated Costs: Enter the total after subtracting items 6 and 7b from item 5.